December 28, 2005

Mr. Paul A. Harden
Site Vice President
Nuclear Management Company, LLC
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES PLANT — REQUEST FOR ADDITIONAL INFORMATION RELATED TO REQUEST FOR RELIEF FROM ASME SECTION XI CODE REQUIREMENTS FOR REPAIR OF PRESSURIZER NOZZLE PENETRATIONS (TAC NO. MC8170)

Dear Mr. Harden:

Your letter of August 11, 2005, requested relief from certain requirements of the 1989 Edition of the American Society of Mechanical Engineers' *Boiler and Pressure Vessel Code* (ASME Code), Section XI, related to repair of pressurizer nozzle penetrations. The specific relief requested is to use an alternative to ASME Code, Section Xi, IWA-3300, "Flaw Characterization," IWB-3142.4, "Acceptance by Analytical Evaluation," and IWB-3420,"Characterization."

We are reviewing your request, and find that we need additional information as shown in the enclosed request for additional information (RAI). I discussed this RAI with Ms. Amy Hazelhoff of your organization on December 15, 2005, and she agreed to respond by February 3, 2006. Please contact me at (301) 415-1423 if you have questions.

Sincerely,

/RA/

L. Mark Padovan, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: RAI

cc w/encl: See next page

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DATE	12/28/05	12/28/05	12/28/05

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Palisades Plant

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Request for Additional Information (RAI)

Related to Request for Relief from ASME Section XI Code Requirements

For Repair of Pressurizer Nozzle Penetrations

Palisades Nuclear Plant

Docket No. 50-255

Attachment 1 to Nuclear Management Company's (NMC's) submittal of August 11, 2005, provided information (NMC responses) that the Nuclear Regulatory Commission (NRC) needs (NRC Conditions) for utilities to use WCAP-15973-P as a reference. However, the NRC needs more information to complete its review. Please supply the additional information requested below.

4.1 General Corrosion Assessment

a. Section 2.4 of WCAP-15973-P, "Low Alloy Steel Component Corrosion Analysis Supporting Small-Diameter Alloy 600/690 Nozzle Repair/Replacement Program," Revision 1, indicates that Palisades' pressurizer nozzles need further analysis using actual thickness measurements to determine acceptable hole diameters.

RAI 4.1.a — Provide the actual thickness measurement for all nozzles that are being evaluated in this relief request, or justify not needing the measurements.

b. NMC's response to NRC Condition 1 indicates that an analysis performed by Westinghouse Electric Company calculated the limiting (allowable) diameter for pressurizer heater sleeve penetrations for Palisades relative to the following:

   (1) the reduction in the effective weld shear area, and

   (2) the required area of reinforcement for the nozzle bore holes for each type nozzle (and heater sleeve) in the pressurizer, primary coolant system piping, and steam generator primary head for each Combustion Engineering, Inc., plant

RAI 4.1.b — Provide the following information for the weld shear stress and reinforcement area analyses:

1. Identify the criteria used to determine the allowable bore-hole size, and include any American Society of Mechanical Engineers code criteria.

2. Identify the pressure and thermal transient conditions assumed in the analysis.

3. Explain how the information in response to a, b.(1) and b.(2) was used to calculate the

allowable bore-hole size.

c. NMC's response to NRC Condition 5 indicates that initial sleeve penetration diameter was 1.173 inches.

RAI 4.1.c — Identify nominal, minimum, and maximum sleeve penetration diameter values for Palisades, and explain why 1.173 inches was used in the analysis.

4.2 Thermal Fatigue Crack Growth Assessment

NMC's response to NRC Condition 3 says that although Palisades' water-solid operation of its pressurizer practically eliminates in-surge and out-surge transients postulated in Westinghouse Calculation Note CN-CI-02-71, a plant-specific flaw fatigue growth analysis was performed. The analysis, provided as Attachment 2 to NMC's letter of August 11, 2005, used a 220 °F in-surge transient in lieu of the 320 °F in-surge transient applied in the generic analysis. The plant-specific flaw fatigue growth analysis was not provided in Attachment 2.

RAI 4.2 — Provide the linear elastic fracture mechanics (LEFM) analysis, and include an evaluation of the available Charpy impact test data to demonstrate the reference temperature (RT_{NDT}) used in the LEFM is limiting for all Palisades nozzle penetrations included in this relief request.

4.3. Stress Corrosion Crack Growth Assessment

NMC's response to NRC Condition 2 indicates that if a pressurizer heater sleeve is repaired at Palisades, NMC will perform a review of the Palisades reactor coolant system chemistry histories, over the last two operating cycles, to confirm that the conditions required by the topical report have been met.

RAI 4.3 — Confirm that the conditions required by the topical report were met for the previous two cycles.